

Market Assessment Survey of Apple grown in Jumla¹

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ABSTARCT

A survey was carried out during June 2011 to provide a concise picture of entire value chain of apple in Jumla to identify the constraints and opportunities. Primary data were collected by individual questionnaire fills up, PRA and focus group discussion whereas secondary data were collected from various publications. The result revealed that Tatopani, Chandannath and Shinjha were major pockets covering 1574 ha of land producing 3500 mt apple fruits/annum with an productivity of 6.6 mt/ha. Out of total production, 43%, 11% and 15% have been used for local consumption, processing and export respectively whereas 31% fruits were lost due to decay. Altogether 10 collection centres and 8 cellar stores are operating for collection and storage of apple fruits respectively. Karnali fruit company, District Cooperative Federation, local collectors, airport vendors and R. K. Apple processing and Horticulture distillery are the major collectors in the district whereas B. H. Enterprise- Kathmandu was major contractor for trading organic certified apples. The price of apple fixed by DCF at Jumla airport ranges from NRs 15-35/kg for organic certified apples whereas NRs 15-30/kg for non organic apples depending upon grade. Transportation cost via aeroplane was NRs 25/kg whereas via truck was NRs 4/kg. Bhatbhatene supermarket, fruit stalls, vendors were major retailers of Jumla apple. R. K. Apple processing and Horticulture Distillery supplying organic brandy, Organic juice, jam and dried apple slice to Jumla Kosheli Ghar, Jumla organic multipurpose co-operative and Anurag Trade concern at Kalanki. Study showed that Nepal produce 41755 mt of fresh apple per annum, however, most of them are being consumed locally. Due to lack of storage, transportation and proper marketing facilities, Indian and Chinese apple fruits arrive in Nepalese market after November as an consequence, Nepal imports 37400 mt of apple, out of which 92% of the apple demand in urban markets is being met from imports i. e. 65% is from China, India (22%) and developed countries (5%). Thus we can conclude that Jumla apples taste is best in terms of its juiciness, crunchiness and sweetness, which can fetch NRs 20 to NRs 25 higher price/kg than Chinese and Indian apples provided they can be improved in terms of size, appearance and colour in the following years.

INTRODUCTION

Nepal is predominantly an agrarian society: agricultural sector provides employment opportunities to 66 percent of the total population and contributes about 36 percent to GDP (ABPSD, 2007). Presently, production of deciduous fruits in Nepal is limited compared with tropical fruit thus substantial quantities are imported to meet domestic demand. Among deciduous fruits, apple is the most important crop in terms of area, production and household economy in remote mountain districts. Apple cultivation in Karnali region has been a major source of income enhancing the livelihood of poor farmers. Considering this fact, APP and Three Years Interim Development Plan has given number one priority to apple as high value cash generating commodity for high-hill farmers of Nepal. A total of 54 districts grow apple, however, only 12 major apple producing districts mainly from high mountain regions. Out of them, Karnali region is major apple producing area (Bhandary D.

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R. *et al.*, 2064). Jumla ranked first among the apple producing districts of Nepal (APP, 1995) in terms of area (1574ha) and production (3500t).

Despite of high potentiality of apple cultivation, apple growers particularly in this region have not been able to obtain optimum benefit from this crop due to low productivity of existing standard varieties, poor orchard management practices, infestation of apple orchards by various insect pests resulting less attractive fruit colour, high losses in quality and quantity during post harvest handling period (Subedi G. D., 2011). Due to lack of storage, transportation and proper marketing facilities, Indian and Chinese apple fruits arrive in Nepalese market after November Nepal produce 41755mt apple/annum, however, most of them are being consumed locally whereas Nepal imports 37400mt apple, out of which 92% of apple demand in urban markets is being met from imports i. e. 65% is from China, India (22%) and developed countries (5%) (Kantipur National Daily, 28 Shrawan 2068). Nepal has potentiality and comparative advantage exporting apple fruits to Bangladesh market because of high quality fruits. Thus, the main objectives of this investigation was to draw a concise picture of entire value chain of apple in order to identify constraints and opportunities that can be exploited for promoting income and employment for rural pro-poor.

METHODOLOGY

Study is based both on secondary and primary information. Primary data were collected from various groups viz producers, LARPs, input suppliers, local traders, processors, etc. by individual semi-structured questionnaire fills up, PRA, focus group discussion at cluster level and interaction and sharing from concerned stakeholders whereas secondary data collected from documents and publications of various government and non government organizations. Technicians of HRS-Jumla, DADO, business communities, processors, traders and exporters were interviewed to come up with more realistic data on production as well as value additions and value chains (N=87).

RESULTS AND DISCUSSIONS

Fig.1 illustrates the value chain map of various actors involved in the Jumla apple value chain, from input suppliers and producers at the bottom all the up to the final consumers. On the left various functions are shown of these primary value chain actors, while on the right side the various service providers or support organisations can be seen. Especially the government support organisations have a strong role in determining the enabling environment through policies, subsidies, etc.

Organic apple production and certification

Important factor which has limited quality production is that declaration of Jumla as an organic district was not sufficiently combined with awareness and knowledge of apple growers and agro-vets. Pine litter is the main constituent of Farm Yard Manure which increases acidity and decreases nutrient availability. SNV Nepal, World Vision and DADO-Jumla agreed to support organic certification in 2009 (Bhandary D. R., 2066). In 2010/2011, three organic apple producer groups were formed in Mahat, Kartikswami and Patmara VDC respectively trained and inspected by Organic Certification Nepal (OCN) and were certified "Organic in Conversion". Thus, there is an opportunity for the Jumla organic apple to be directly sold to supermarkets in Kathmandu with a premium price. Nevertheless, the market for organic products is still very scattered. Organic Village has various organic outlets.

Harvesting, sorting, grading, packaging and storage

Apple producers do not have much knowledge on the appropriate techniques for proper picking, grading and packing. Apples are harvested in a most haphazard manner – including shaking the tree and picking from the ground. Without grading they are transported to Jumla airport in dokos especially by women. Grading is done by the traders – usually three grades depending on size alone for export to Surkhet, Nepalgunj and Kathmandu. The district head quarter traders will use the worst apples for processing or for the local market. Traders have till 2008 also not properly prepared themselves by bringing packaging material before the monsoon starts. A lot of losses occur due to improper packaging: old boxes are used without any wrapping or separation material and a considerable amount gets damaged.

Farmers store apples underground inside the house: a pit in the ground filled with barely straw and covered with a stone or wooden slab.

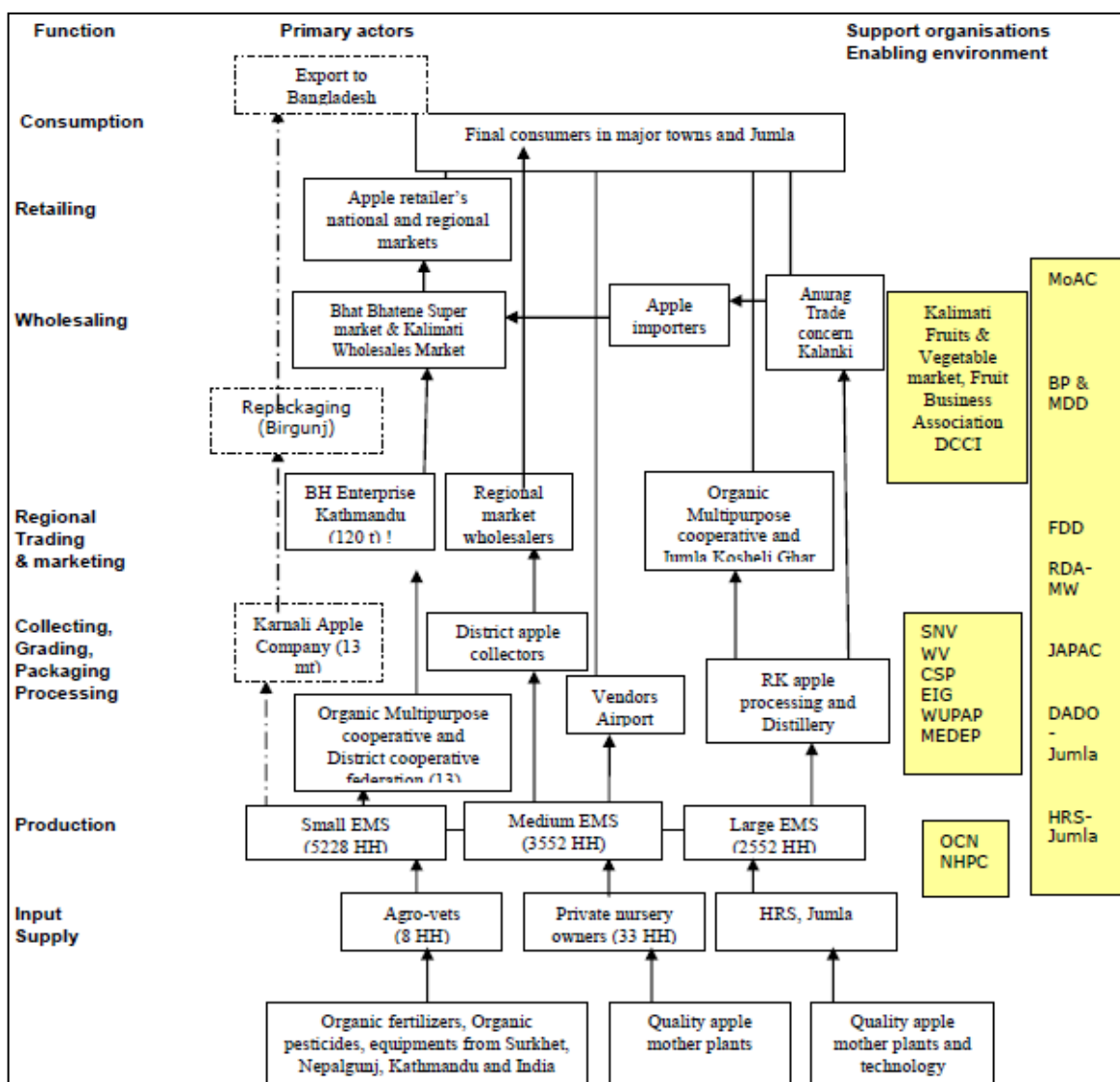


Fig.1: Value chain map for jumla apples

Table 1: Pocket area, production and area coverage of apple enterprise in Jumla

Pocket Area	FY 064/065		FY 065/66		FY 066/67	
	Area (ha)	Prod. (t)	Area (ha)	Prod. (t)	Area (ha)	Prod. (t)
Tatopani Pocket: <i>Talium, Lamra, Haku, Tatopani, Kudari, Malikathata, Ghodemahadev</i>	297	801	345	931	395	1050
Chandanath Pocket: <i>Patmara, Chandanath, Depalgaun, Garjyankot, Mahat, Kartikswami</i>	710	1775	789	1972.2	943	2100
Sinjha Pocket: <i>Mahabaipatarkhola, Kalikakhetu, Badki, Shannigaun, Narakot, Dhapa, Birat, Pandavgufa, Kanakasundari, Botamalika</i>	198	297	210	310.5	236	350
Total	1205	2873	1344	3213.7	1574	3500

Table 2: List of cellar stores in Jumla

S. N.	Ownership	Address	Capacity (t)	Established year	Existing Condition	Supporting institution
1	Navayuba farmer group	Chandannath 3	10	2051	Good	SEBED
2	Raj Bahadur Bhakri	Chandannath 3	5		Good	Farmer group
3	Sidda Bhawani farmer group	Talium 7	5	3063	Fair	DADO
4	Agriculture production group	Talium 8	5	2062	Good	DADO
5	Depak Shahi	Kartik Swami 6	10	2059	Good	Farmer group
6	Krishna Bahadur Shahi	Kartik Swami 6	5	2059	Good	Farmer group
7	Purinath Neupane	Kartik Swami 1	6	2064	Good	Private
8	NA	Depalgaun 4	5	2064	Fair	RDGP

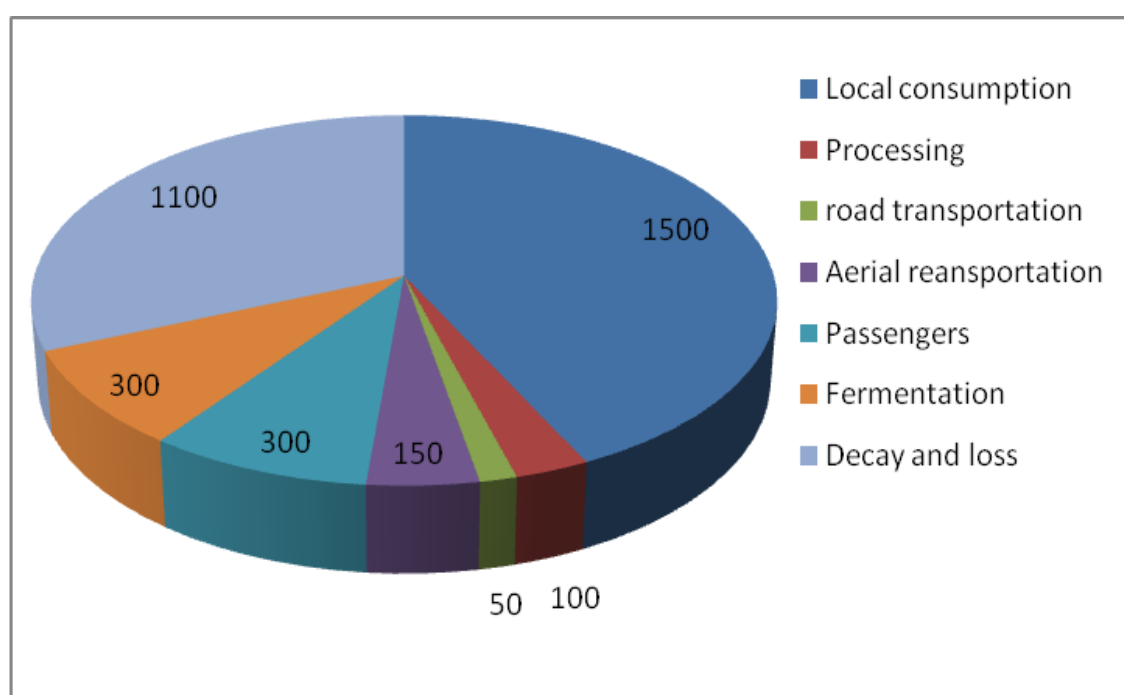


Fig. 2: Production and distribution of Jumla apple (mt) during 2010

Table 3: List of collection centres at Jumla

S. N	Name	Address	Command VDCs	Capacity (mt)
1	Hanuman mandir Hat bazaar	Chandannath 6	Chandannath, Depalgaun, Garjankot, Mahat, Tallium, Patmara, Kartikswami	NA
2	Apple collection centre and selling centre, airport	Chandannath 1	Chandannath, Mahat, Patmara, Kartikswami	125
3	Organic apple Collection centre, Airport	Chandannath 1	Chandannath, Mahat, Patmara, Kartikswami	150
4	Chandannath collection centre and selling centre	Chandannath 1	Chandannath, Depalgaun, Garjankot, Mahat, Tallium, Patmara, Kartikswami	NA
5	Urthu-Chauthara Collection centre	Patmara 3	Patmara	10
8	Fruit and vegetable collection and selling centre	Chandannath 6,7	Chandannath, Mahat, Patmara, Kartikswami	140
9	Fruit and vegetable collection and selling centre	Tatopani 1,2	Tatopani, Kudari, Hanku	NA
10	Fruit and vegetable collection and selling centre	Narakot 4	Narakot, Dhapa, Sanigaun	45

Table 4: Price of apple determined by District Cooperative Federation during 2011

Description	Grade	Price (NRs/kg)
Organic certified	A	35
Organic certified	B	30
Organic certified	C	20
Non organic	A	30
Non organic	B	25
Non organic	C	15

Table 5: Transport costs of different commodities

Route	Mode of transport	Transport cost per kg
Jumla-Nepalgunj/Surkhet	Air	25/- (traders with access to DADO subsidies can reclaim 7/- per kg after the apples have reached Surkhet).
Jumla-Surkhet	Truck/tractor	4/-
Nepalgunj/Surkhet- Jumla	Air	95/- (Excess luggage) 75/- (Cargo separate) 42/- (Charter)
Surkhet-Jumla	Truck/tractor	10/- depending on the volume

Marketing

The local traders collect apples in major collection and market centres and supply them out district market centre like Surkhet, Nepalgunj and Kathmandu.

Trade from Jumla

Track of Karnali Highway from Surkhet to Jumla (232 km) was opened in 2007. This has greatly increased the perceived future perspectives for the Jumla apple sector. World Bank is supporting the blacktopping of 132 km - it still will take few years for the road to be all weather proof all the way to Jumla. Most apple transport takes places by air, not just a very costly business but also quite unreliable as flights depend on weather conditions.

Those 10% apples which do reach the market outside Jumla mostly serve the cheaper market segment in the terai: poor management, all the way from orchard management to packaging and transport, make these relatively small and often bruised apples less attractive. Nevertheless, in comparison to Chinese and Indian apples, Jumla apples are widely recognised as tasty and crispy apples in Nepal, but size, colour and general condition have a big influence on consumer decisions.

The different marketing or trade modalities are currently in operation in Jumla:

District Cooperative Federation collects organic certified apples at Jumla airport and sends to BH enterprise- Kathmandu

Large apple producers who bring their produce to Surkhet and Nepalgunj themselves

Growers –especially in Jumla’s Sinja belt – who collect from other farmers as well and the produce to the terai.

District head quarter traders with a storage at the Jumla airport who either rent orchards and organise the harvest themselves or buy at the airport from farmers.

Wholesaling

There are fruit traders in Nepalgunj, Surkhet, and Narayngarh who are all interested to trade with Jumla apples. These traders have market networks to major urban cities/towns across the country, including Kathmandu. In the past, local traders and even some local apple producers delivered Jumla apples to regional traders. Wholesale traders at Nepalgunj and Surkhet buy and put their apple fruits mainly on night buses to various destinations, where they sell to retailers. There are many wholesale traders in Kathmandu and other market hubs of Kathmandu, who trade mainly Indian and Chinese apples. Recently B.H. Enterprise-Kathmandu is the main contractor of Jumla organic certified apples who trade apples to Kalimati fruits and vegetable market, Bhat Bhatene Super market as well as to the retailers in Kathmandu. In the past, some local apple producers delivered Jumla apples to wholesalers in Kathmandu. The wholesalers in Kathmandu found Jumla apples very tasty and juicy, but complained about their poor appearance and colour. Presently, they are mainly importing apples from China and India to meet urban demand of apples. In case of the organic certified apples of Jumla, Organic World & Fair Future, a distributor specialised in organic products, delivered to various supermarkets. The Narayanghat Fruit Cooperative also took up wholesale of certified apples.

Retailing

Very high quality apples from overseas are directly imported and sold by supermarkets such as Bhatbateni and Salesway. Similarly, there are several fruit stalls at different towns

that trade Jumla apples. Likewise there are more than 30 fruit vendors at Jumla airport, and other towns involving trading of Jumla apples seasonally.

Processing

One of the largest enterprise established in 2011 at Mahat-1, Jumla called R.K. Apple Processing and Horticultural Distillery Pvt. Ltd. have started production and trading of brandy, dried slice, Juice and Jam on commercial scale to Anurag Trade concern at Kalanki. Likewise, Organic Multipurpose Cooperative ltd Jumla has also contracted with SAUGATGRIGA of Tripureshwor for marketing of apple processed products. However, there are more than hundred unregistered apple processing enterprises involved in production of Rakshi, dried slice, Juice and Jam. The collection and marketing is mainly is being carried out by Jumla Kosheli Ghar and Organic multipurpose cooperative Limited.

Table 6: Demand of diversified apple products and their price at R.K. Apple processing and Horticultural Distillery Private limited, Jumla

S. N.	Apple products	Annual Demand		Annual Supply	Whole Sell Price (NRs)
		Local	National		
1	Organic Brandy (42.5%)*	2400 litre	1,00,000 litre	7000 litre	400 per 750 ml
2	Cider	-	-	-	-
3	Jam	-	100 kg	100 kg	225 per kg
4	Jelly	-	-	-	-
5	Dried apple slices	1000 kg	5000 kg	1500 kg	800 per kg
6	Organic Juice	5000 litre	45000 litre	10,000 litre	Per litre

*Chiraito is used for fermentation instead of commercial yeast

Market trends and competitiveness

Area under apple cultivation is drastically increasing order in each year. Although there is demand for apples, the competitiveness of the Jumla value chain with other supply chains of apple to the major markets will in the end determine whether the Jumla farmers will be able to sell their produce. Jumla apples taste is best in terms of its juiciness, crunchiness and sweetness compared to Chinese and Indian apples which can fetch NRP 20 to NRP 25 higher price per kg of apples than Chinese and Indian apples provided they can be improved in terms of size, appearance and colour. At the moment the quality of Jumla apples they receive is very poor. Traders' suggestions are to train apple growers in proper picking, handling, sorting, grading, storing and improved orchard and nursery management practices by which quality of Jumla apple improved to greater extent.

Domestic Production

There are 11 major apple producing districts in Nepal producing 41755 mt of fresh apple during 2066/2067; most of them are being consumed locally. Nepal imports 37400 mt of apple, out of which 92% of the apple demand in the urban markets is being met from imports i. e. 65% is from China, India (22%) and developed countries (5%). Jumla organic apples are mostly sold in Kathmandu whereas non organic apples are mostly sold in Surkhet and Nepalgunj.

Import of Chinese, Indian Australian, New Zealand and American Apples

Chinese apple wholesale dealers based in Kathmandu import 20-25 varieties of apple from China covering a distance of 2200 to 3000 km and supply to Kathmandu wholesalers who get a 3-4% commission. Transport costs are NRs 200/crate containing 7 to 10 kg. Indian apples are cheaper during harvesting season, so traders prefer to deal with Indian apples from Himachal Pradesh and Kashmir from a distance of 1200 to 1500 km. Transport cost is NRs 4/kg, tax and other duties are NRs 25,000/truck. Wholesale price for Indian apples range from NRs 50 to 80/kg depending upon the variety, quality and grade of apple where as retailers sell at a price ranging from NRs 60 to 120/kg. During the peak season Indian apples becomes cheaper than Chinese apples. High quality apples from imported from developed countries are being sold in big supermarkets.

CONCLUSION AND RECOMMENDATIONS

Observation visit to apple growing areas of Himanchal Pradesh and China must be arranged for all the stakeholders

Private nursery owners need to improve their orchard management practices and capacity enhancement of agro-vets through training is needed

Apple growers should improve their orchard management practices to produce quality apples as per market demand and big campaign is needed to disseminate improved technologies

On the spot trainings are required for production of home-brewed organic pesticides

Production of quality compost and intercropping of grain legumes in apple orchards

Technology for water conservation and utilization, harvesting, handling, sorting, grading, waxing, packaging, storage and transportation should be developed

Supply of packaging material should be well organised

District traders should work towards reliable market channels with sufficient flexibility to adapt to price changes of apple in the major markets

Apple cooperatives need to be formed which could take over tasks from district traders and deal directly with wholesalers

Stable marketing channel for organic certified apples should be developed to reach niche markets where apples can fetch premium prices

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